

**FIG. 1A**

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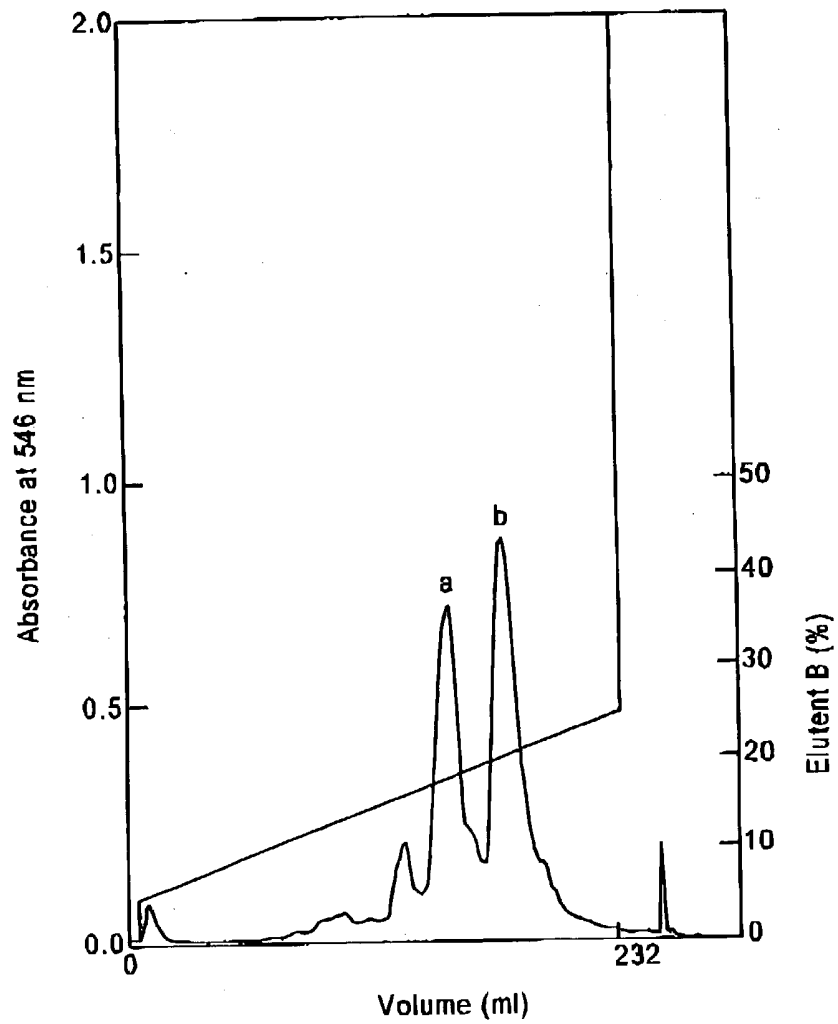
p:tac
AAATGAGCTG TTGACAATTA ATCATCGGCT CGTATAATGT GTGGAATTGT GAGCGGATAA
                      EcoRI  SacI  KpnISmaI
CAATTTTACA CAGGAAACAG AATTCGAGCT CGGTACCCGG GCTACATGGA GATTAACTCA
                      RBS          | -> α-globin
ATCTAGAGGG TATTAATAAT GTATCGCTTA AATAAGGAGG AATAACATAT GGTGCTGTCT

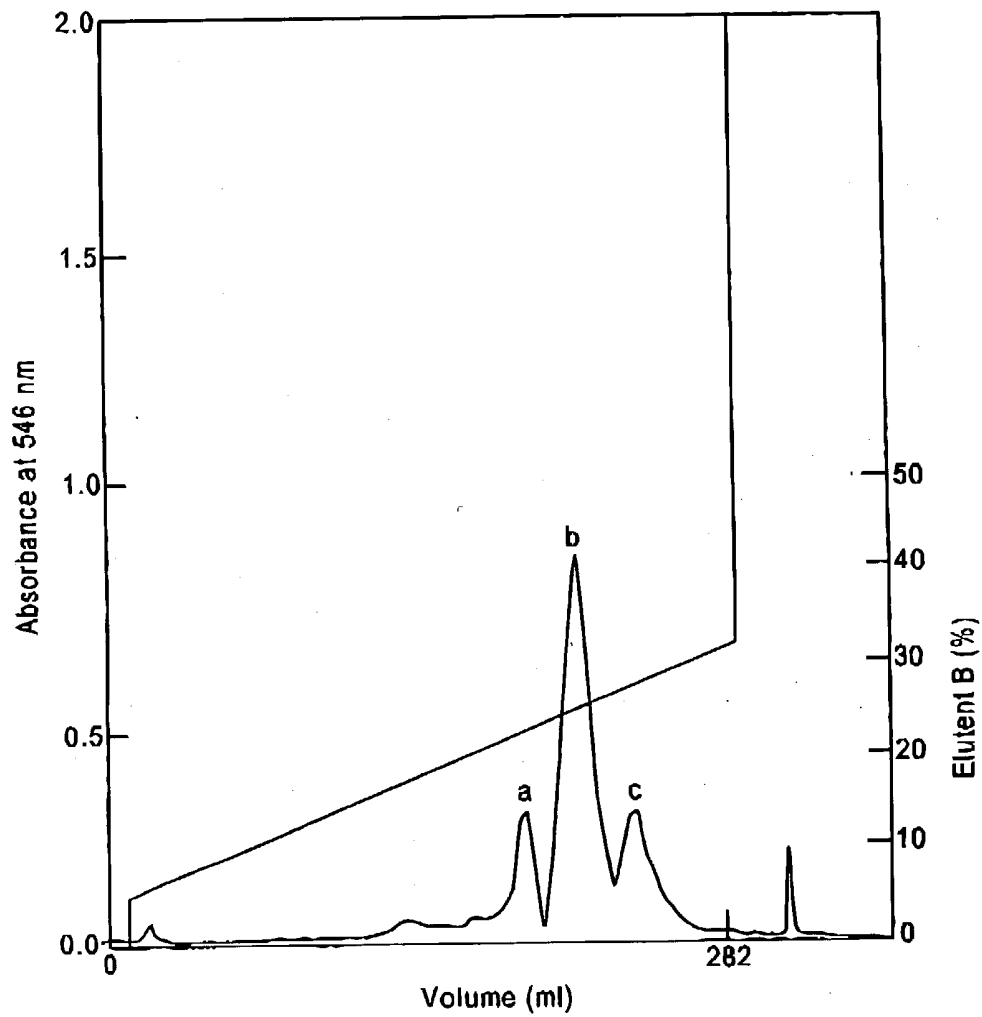
CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGCGCGCA CGCTGGCGAG
TATGGTGCGG AGGCCCTGGA GAGGATGTTT CTGTCCTTCC CCACCACCAA GACCTACTTC
CCGCACTTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC
GACGCGCTGA CCAACGCCGT GCGCGACGTG GACGACATGC CCAACGCGCT GTCCGCCCTG
AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC
TGCCTGCTGG TGACCCTGGC CGCCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC
                      ->|
TCCCTGGACA AGTTCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT
                      RBS          | -> β-globin
AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC

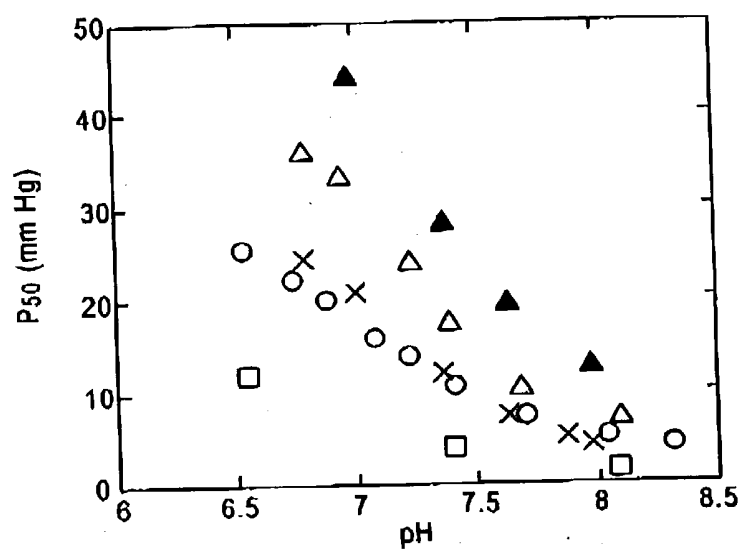
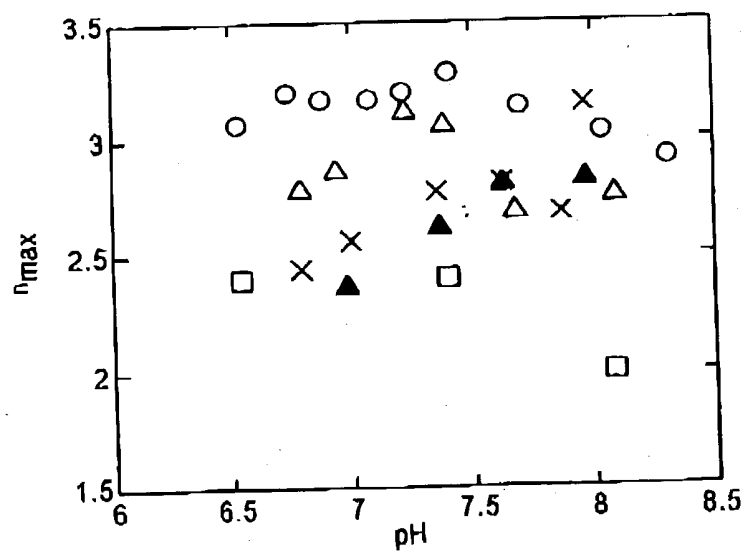
CTGAGGAGAA GTCTGCCGTT ACTGCCCTGT GGGGCAAGGT GAACGTGGAT GAAGTTGGTG
GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTC TTTGAGTCCT
TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA
AGAAAGTGCT CGGTGCCTTT AGTGATGGCC TGGCTCACCT GGACAACCTC AAGGGCACCT
TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGT
β105Leu->Trp
GGCTAGGCAA CGTGCTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCAC
CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT
->|SphI      rB(5S,T1,T2)
ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTGAGCCTG ATACAGATTA
NsiI

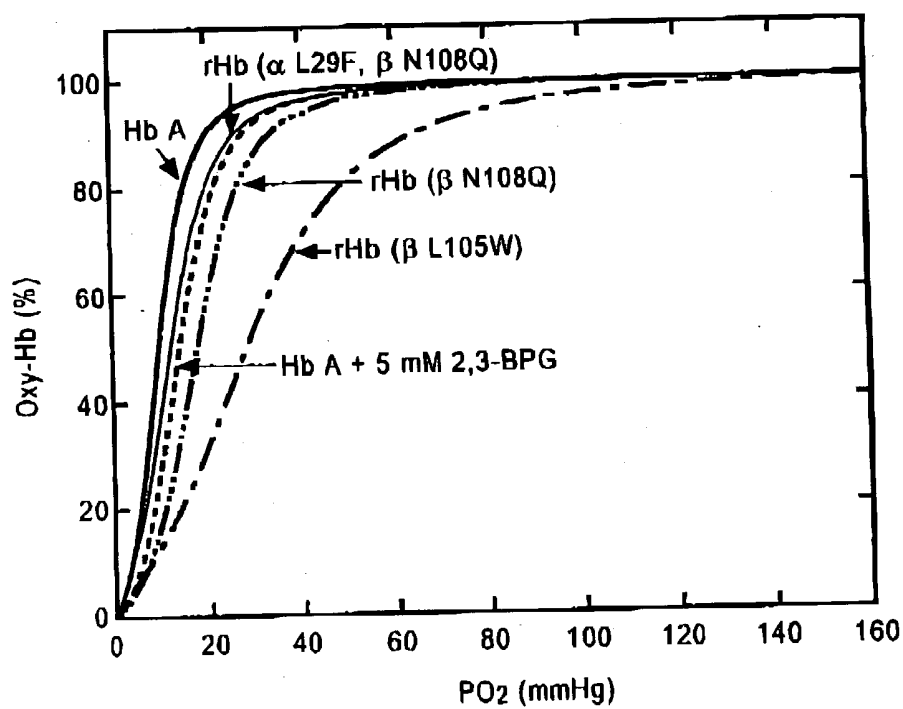
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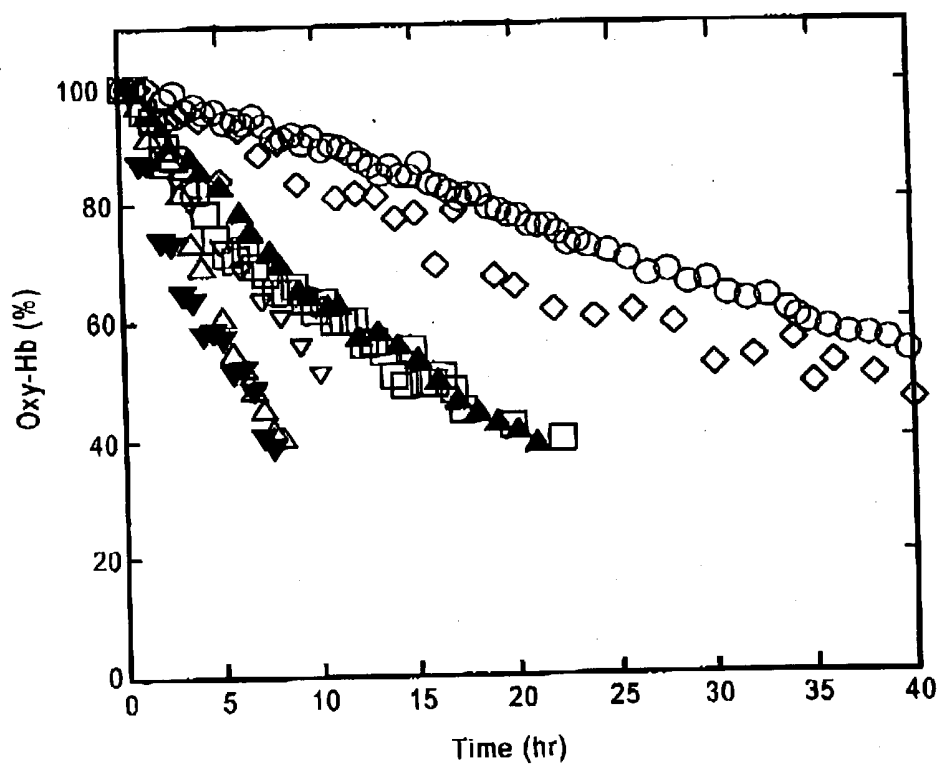
FIG. 1B

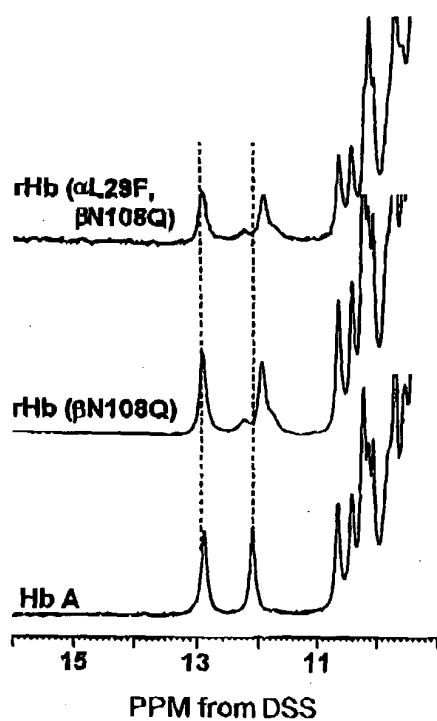
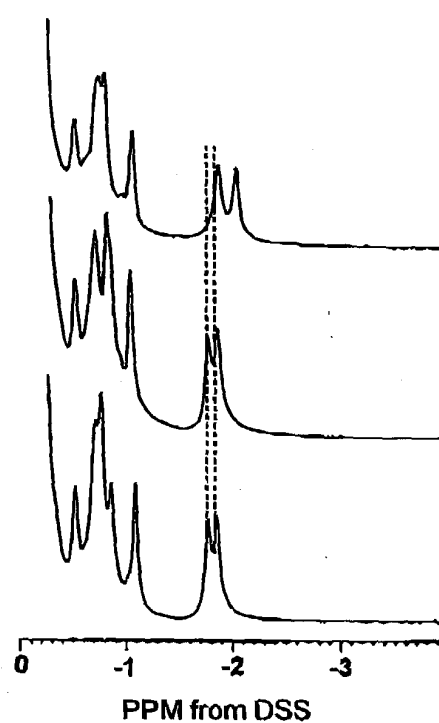
**FIG. 2A**

**FIG. 2B**

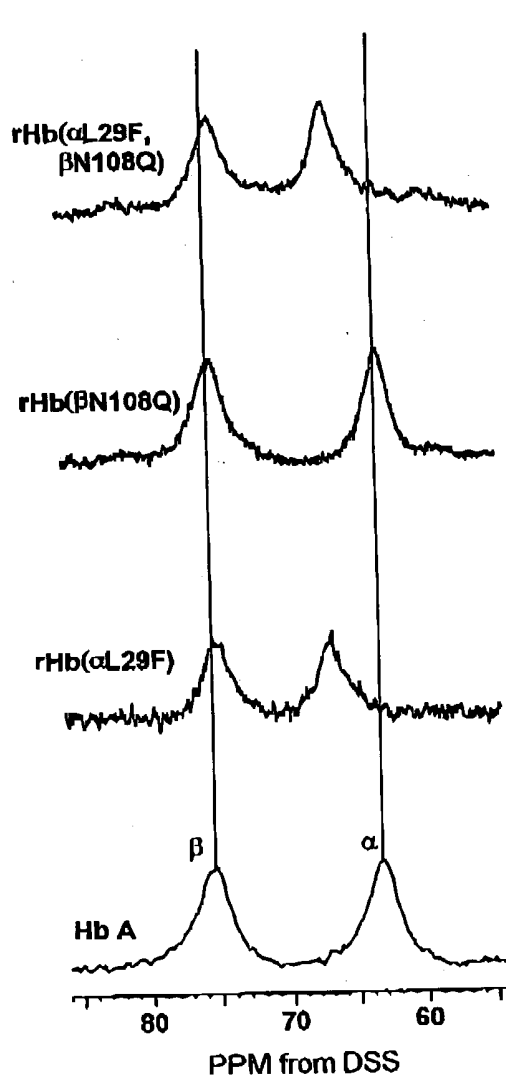
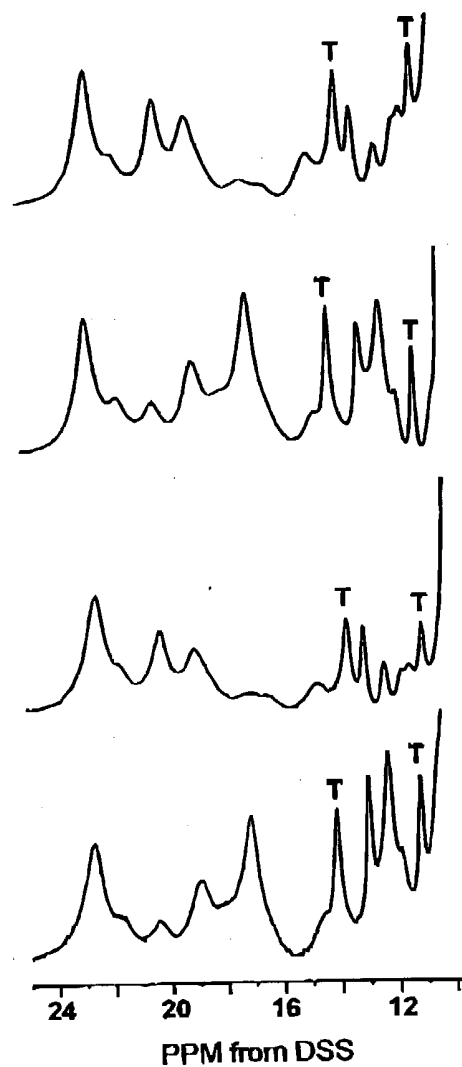
**FIG. 3A****FIG. 3B**

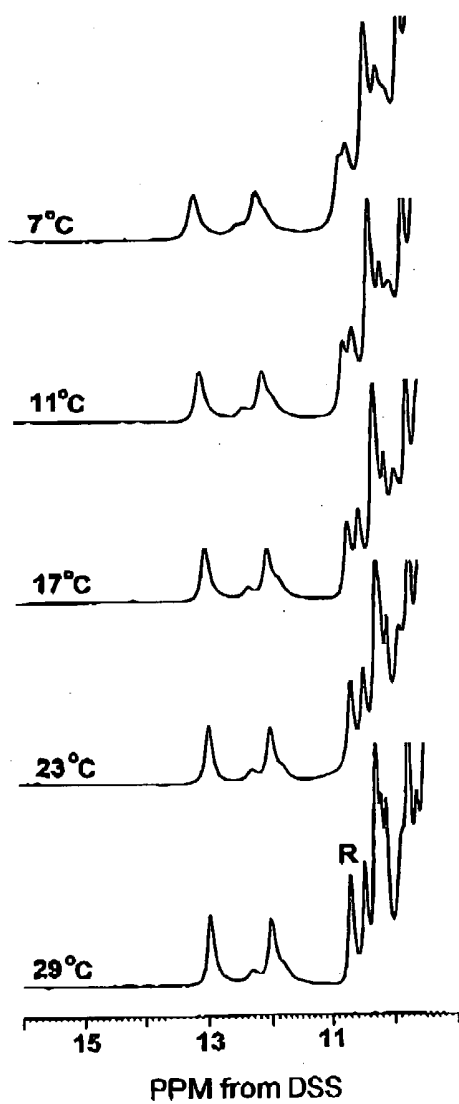
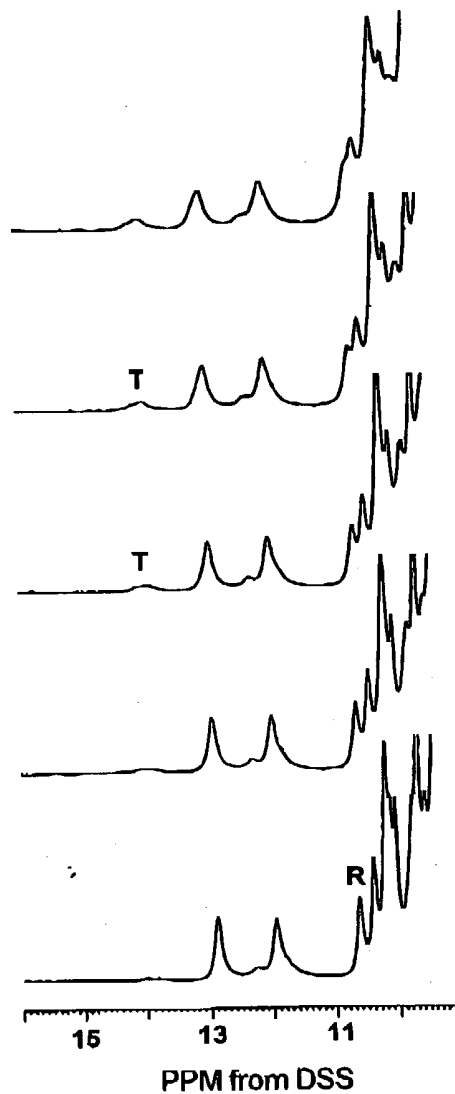
**FIG. 4**

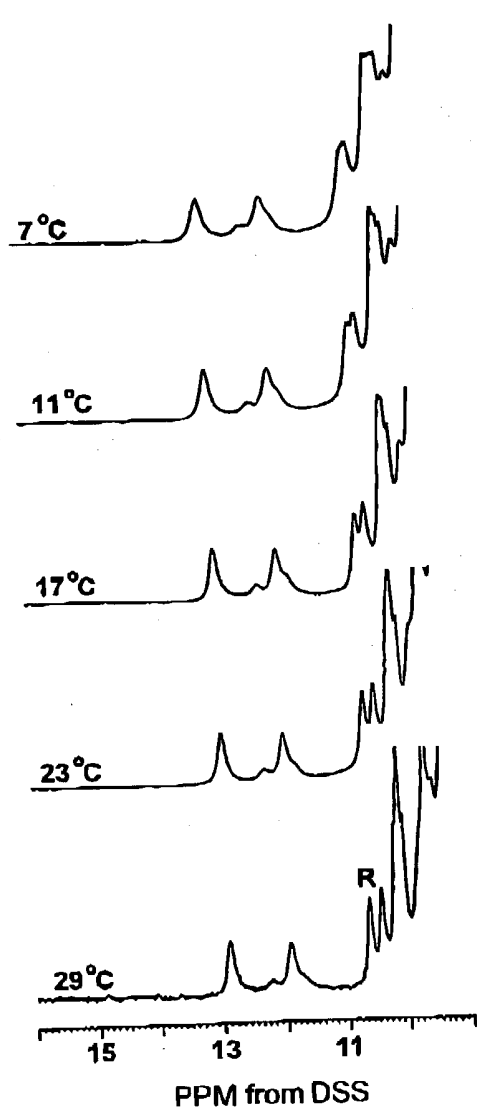
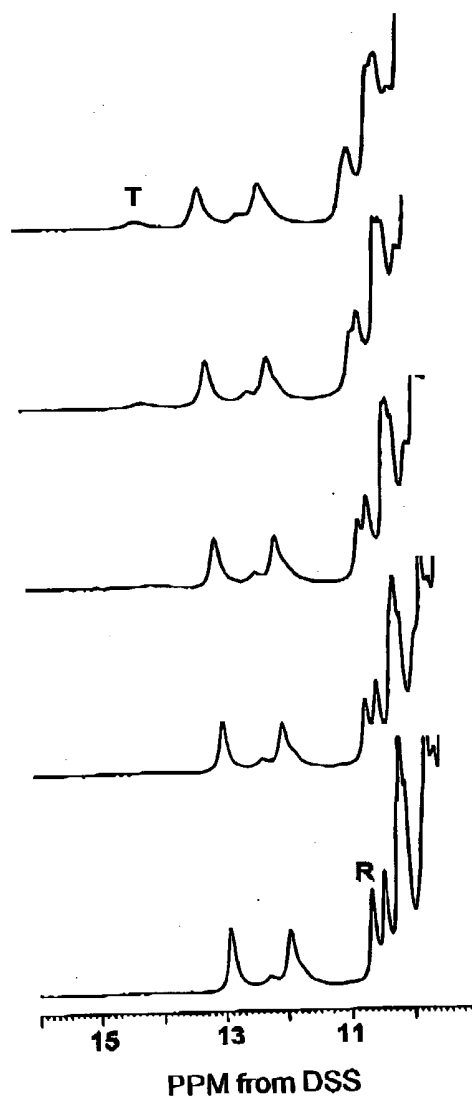
**FIG. 5**

**FIG. 6A****FIG. 6B**



**FIG. 7A****FIG. 7B**

**FIG. 8A****FIG. 8B**

**FIG. 9A****FIG. 9B**

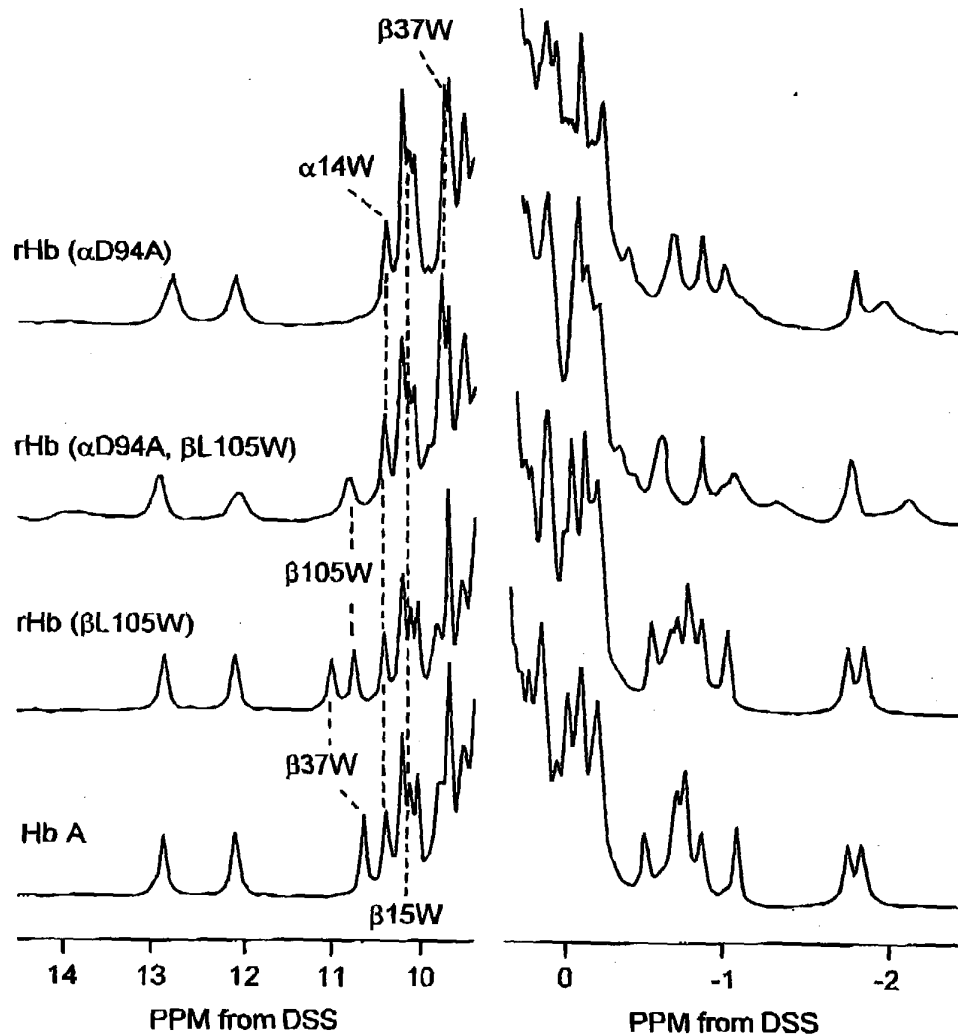
**FIG. 10A****FIG. 10B**

FIG. 11A

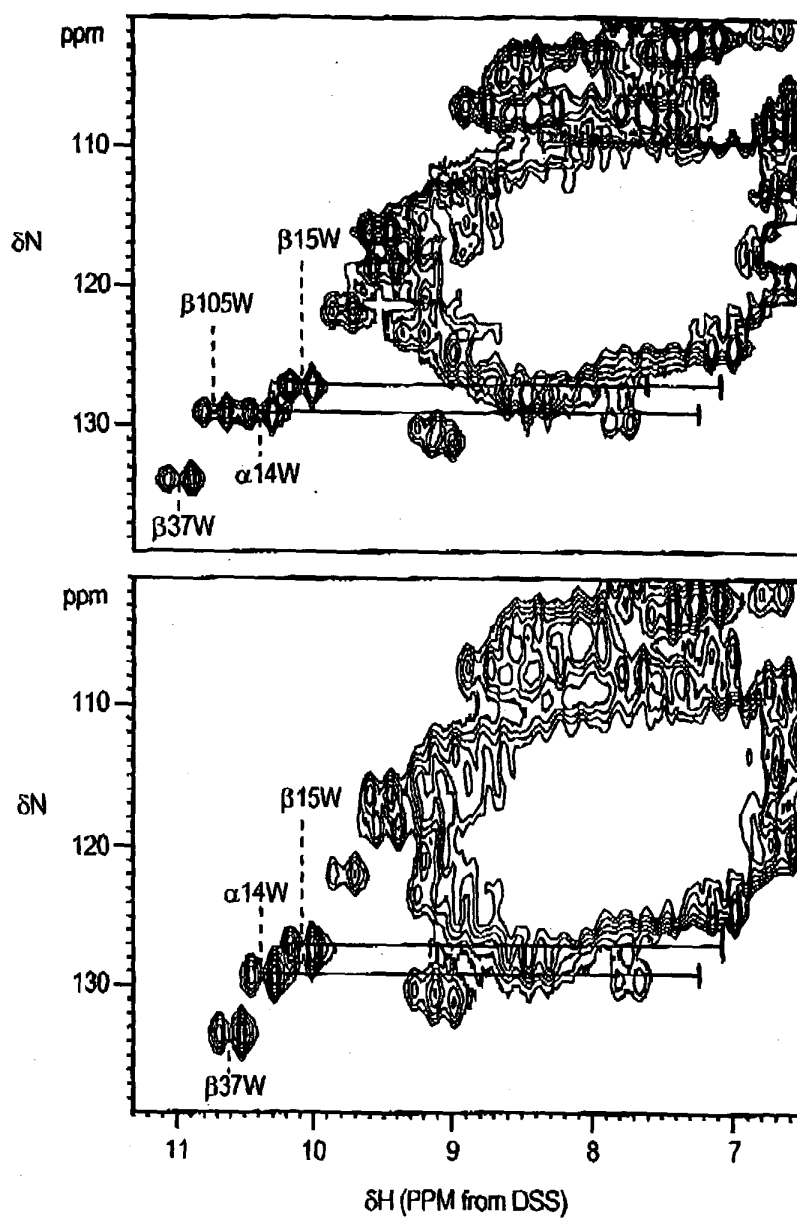
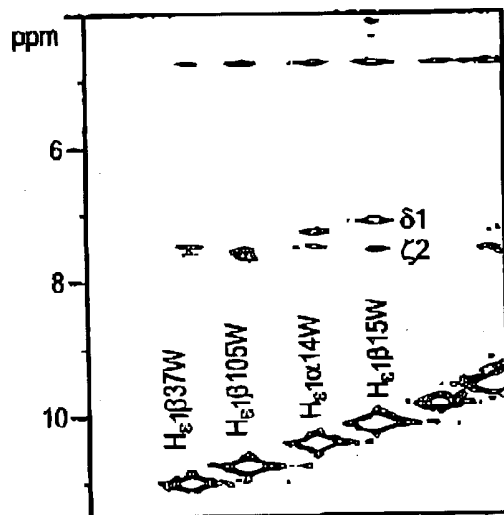
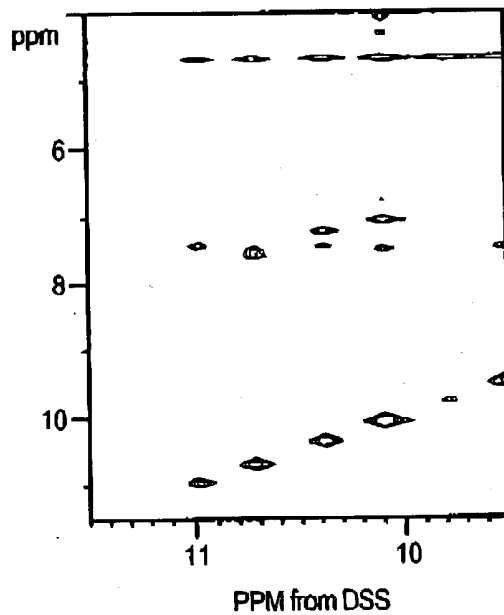
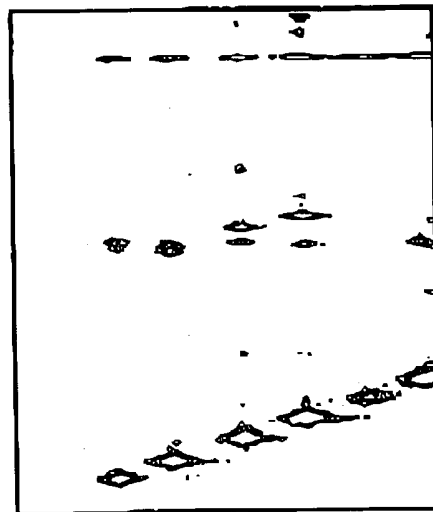
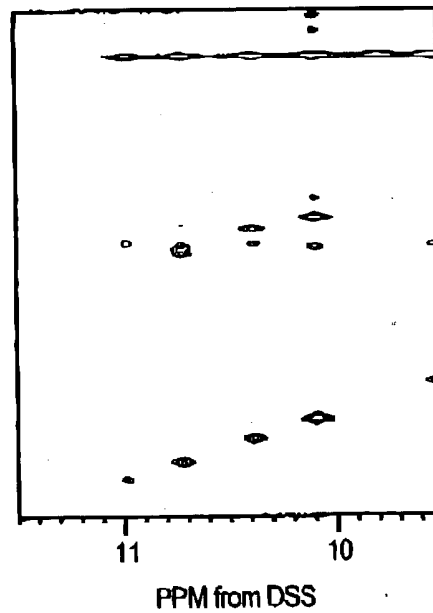


FIG. 11B

**FIG. 12A****FIG. 12B****FIG. 12C****FIG. 12D**

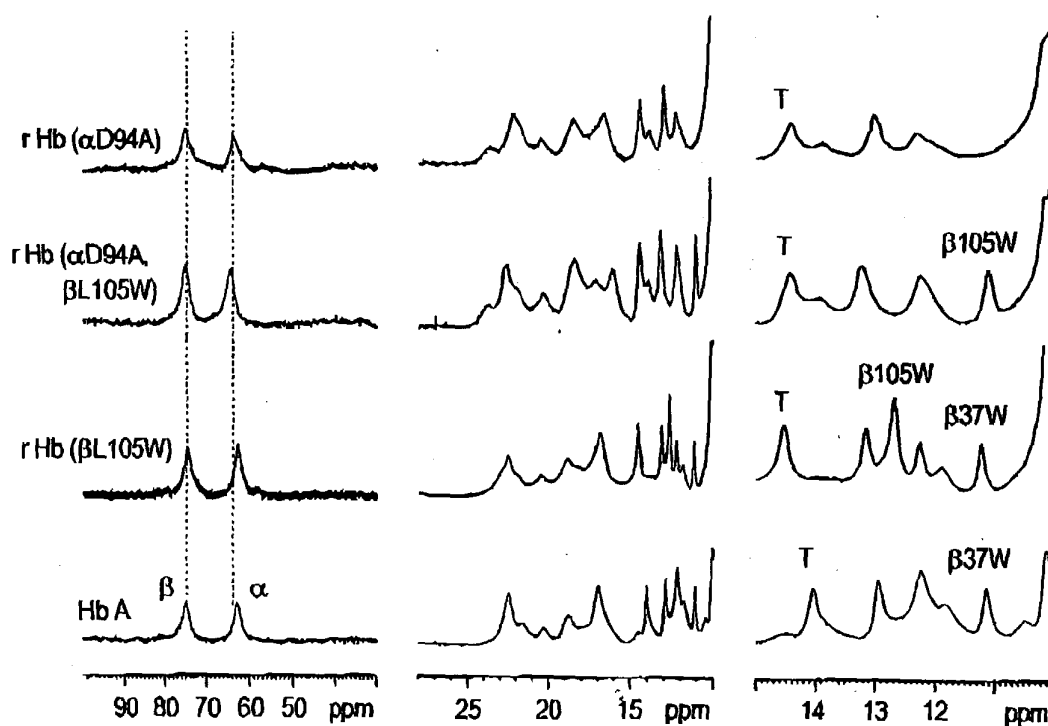


FIG. 13A

FIG. 13B

FIG. 13C

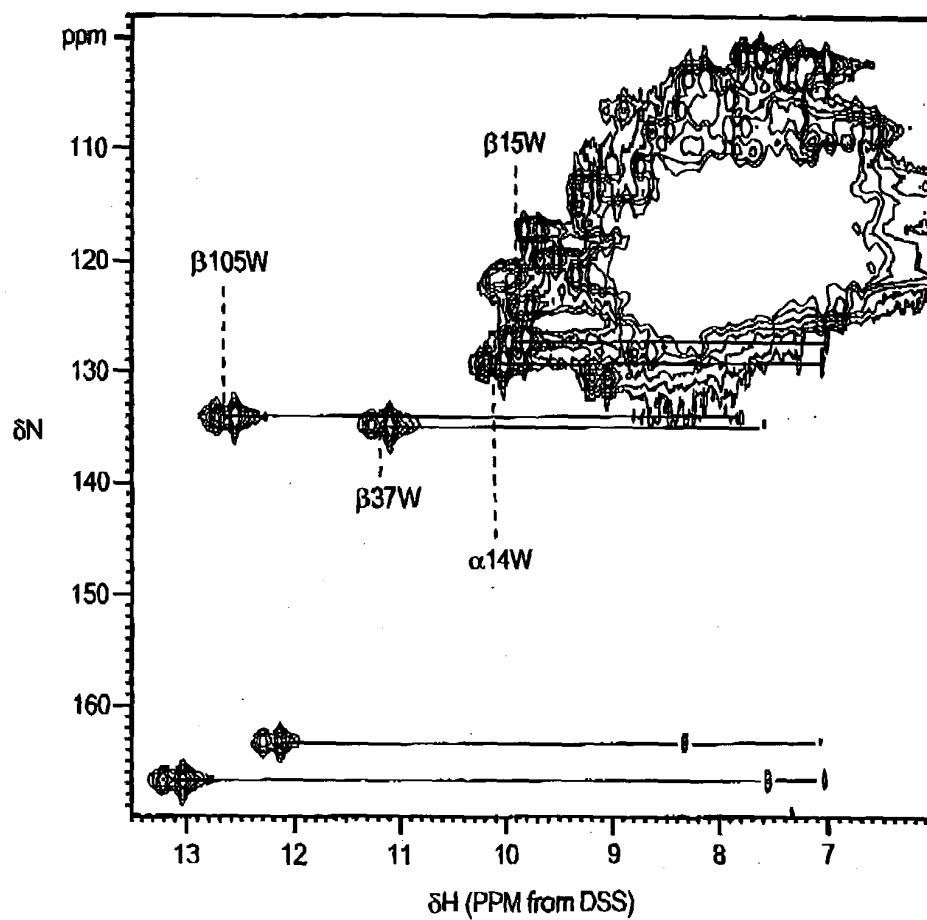
**FIG. 14**



FIG. 15A

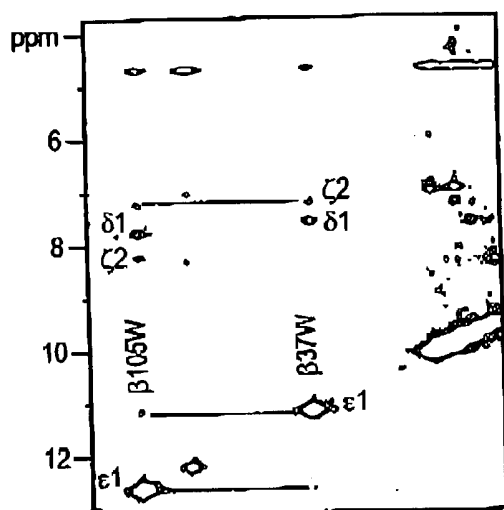


FIG. 15B

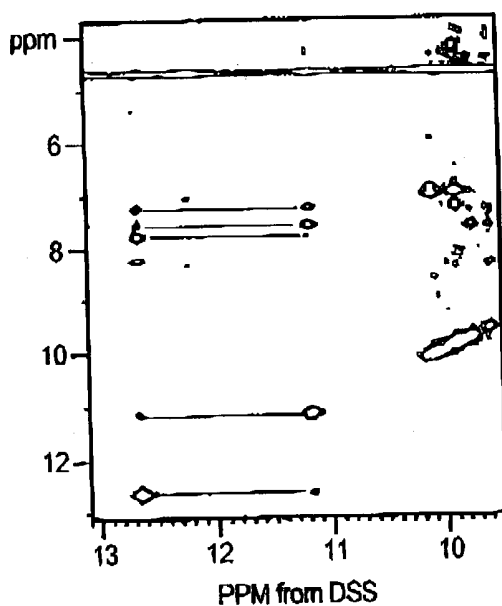
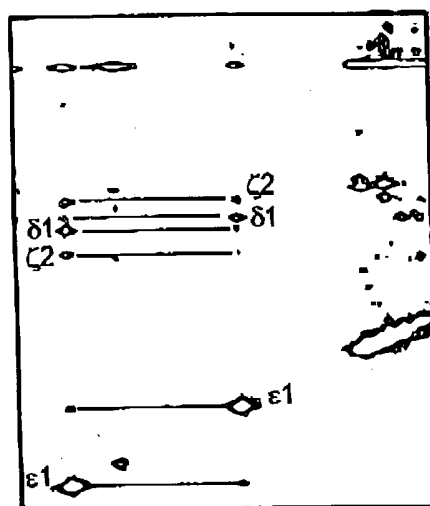


FIG. 15C

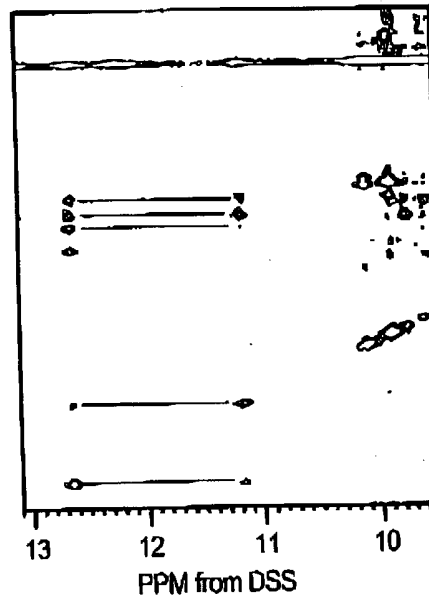


FIG. 15D

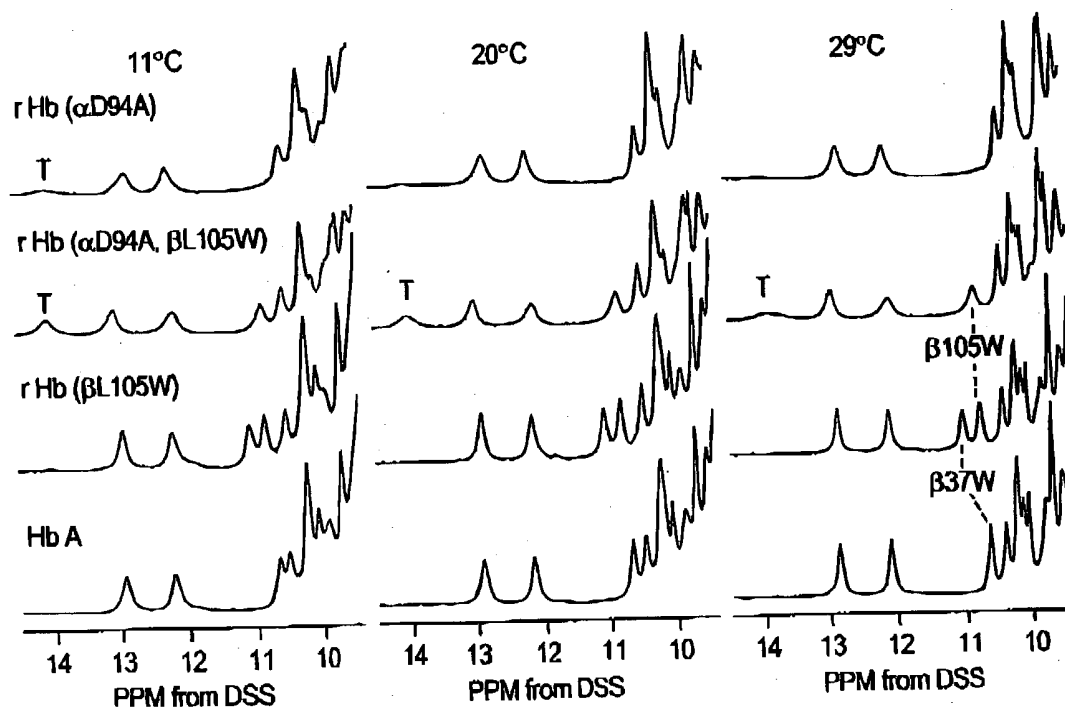
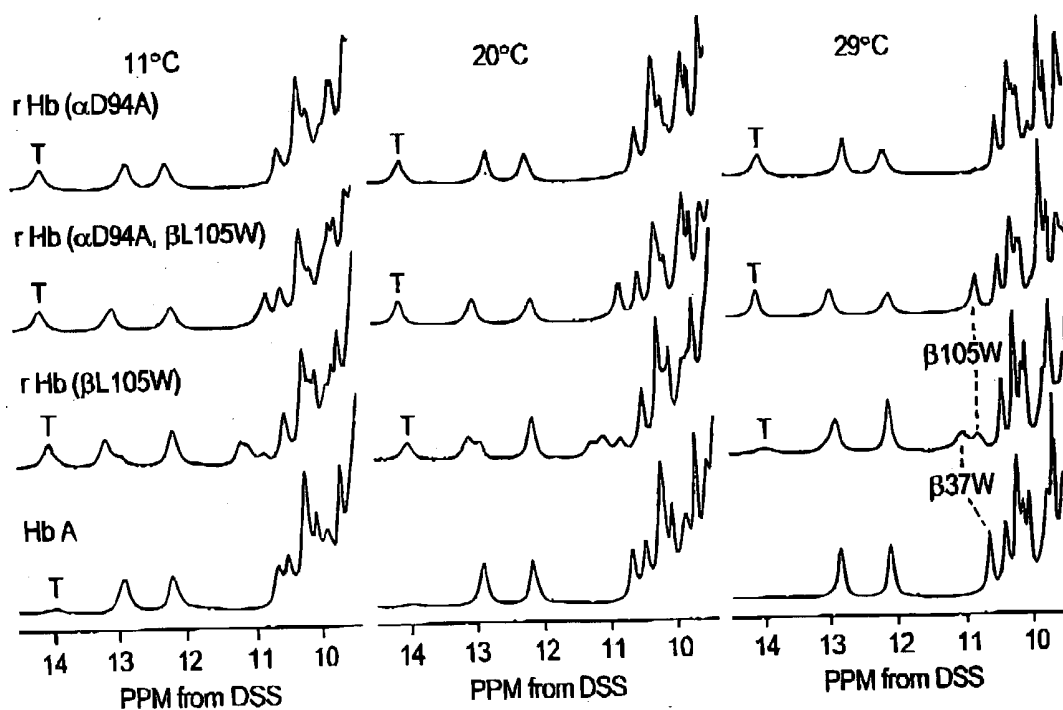
**FIG. 16A****FIG. 16B**

FIG. 17A

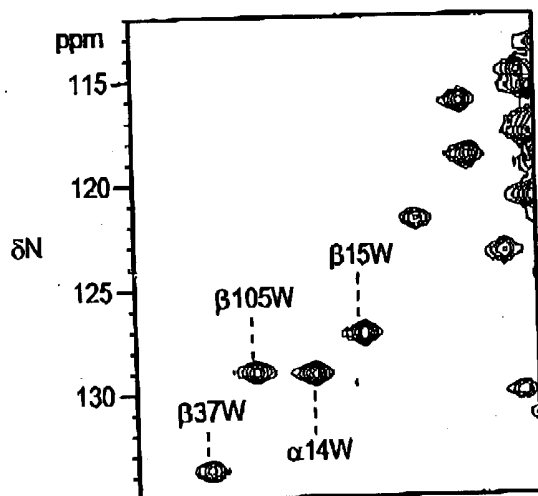


FIG. 17B

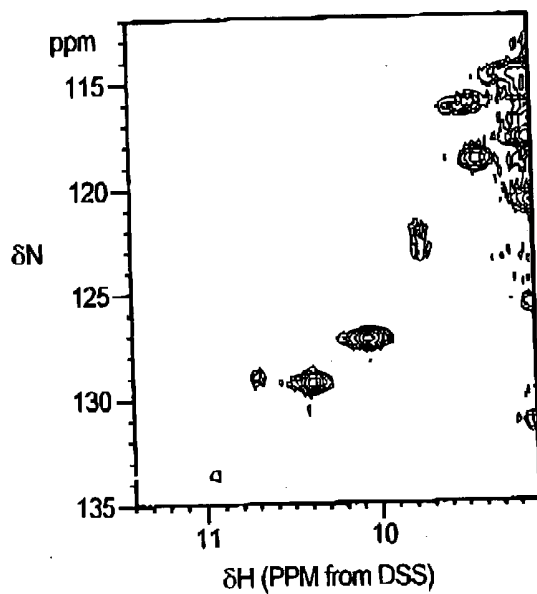
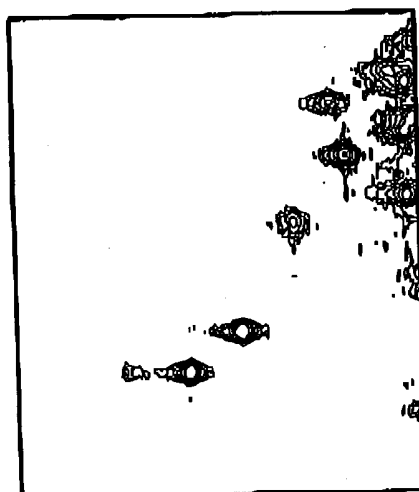


FIG. 17C

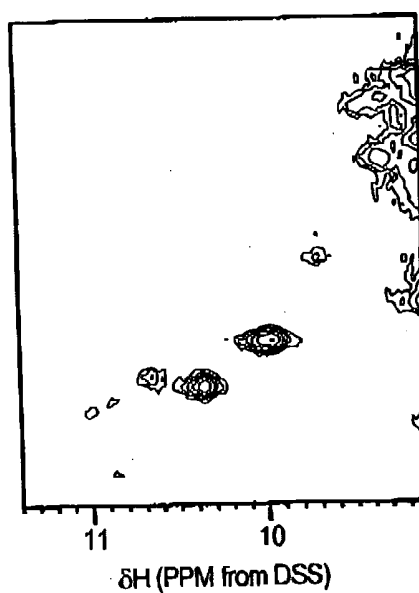
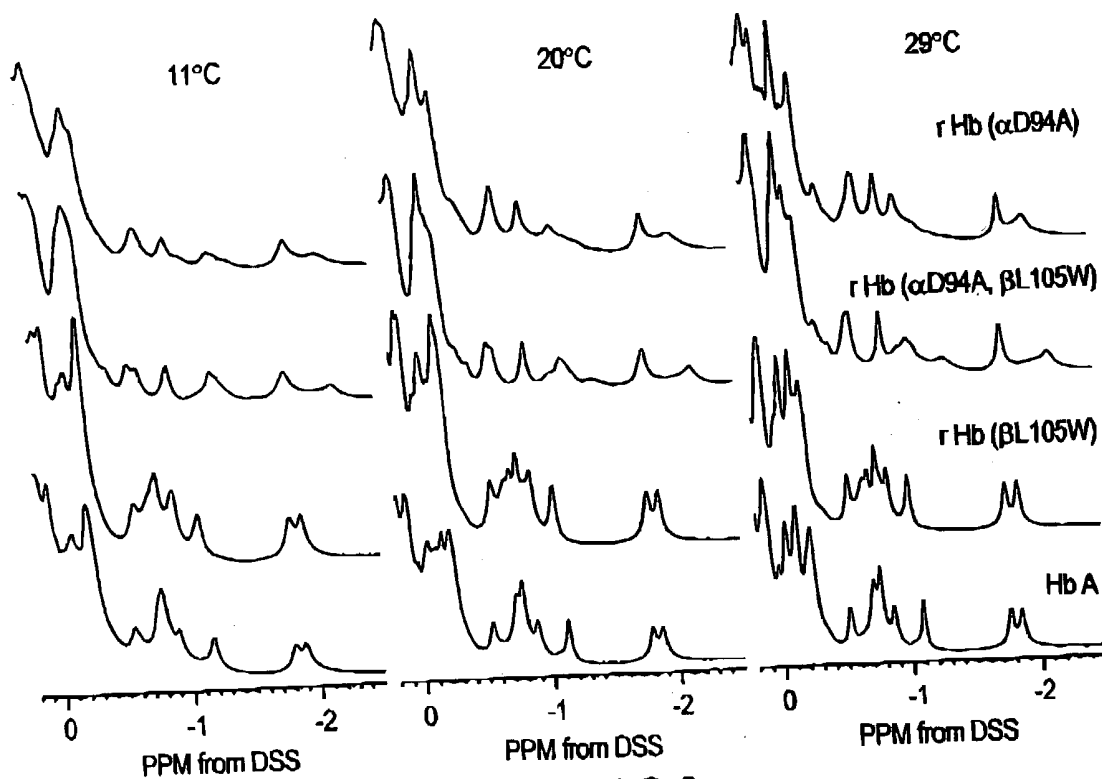
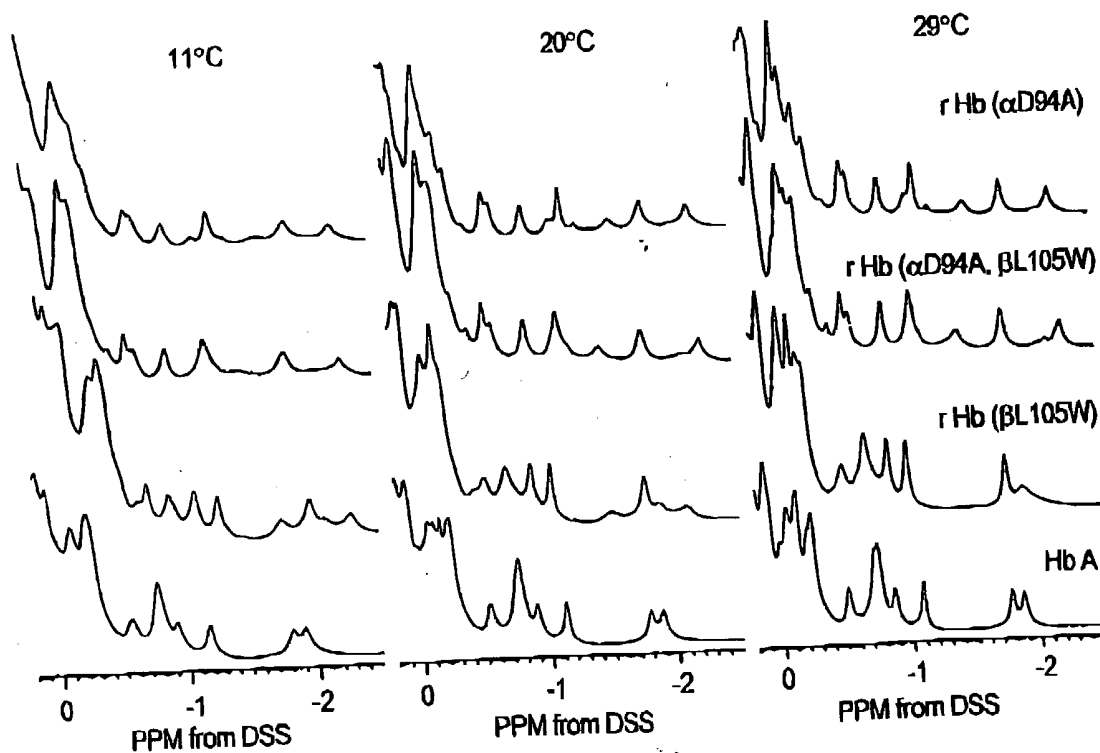


FIG. 17D

**FIG. 18A****FIG. 18B**